Leadless pacemaker

Prelims – *Current events of National and International Importance | General Science.*

Why in News?

Recently, Venkateshwara Hospital, Chennai, highlighted the successful implantation of a leadless pacemaker in an elderly patient.

- **Need –** Pacemaker ***eliminates the need for leads*** (wires) that connect to the heart, which ***reduces the risk of infection*** and complications associated with traditional pacemakers.
- It helps to reduce patient discomfort, infections, device complications, and dysfunction.
- It will benefit elderly patients who with multiple comorbidities, a higher risk of infection and bleeding**.**
- **Leadless pacemaker –** It is a modern, small device that provides ***electrical stimulation to the heart.***
- It does not have wires or a large battery and doesn't need a surgical pocket for its implantation.
- **Size and shape –** It are ***3cm in length, shaped like a bullet,*** and is ***minuscule,*** compared to a conventional pacemaker, which has the size of a matchbox.
- **Components –** The battery and the electrical components are all located in this ***bullet-shaped capsule***.
- **Implantation –** It is implanted directly into the heart through a vein in the leg using a catheter. There is no surgical pocket; the patient can be discharged the very next day.
- **Advantages –** It is easily removable and longer battery life, 16-17 years, compared to a conventional pacemaker.
- **Limitations –** It costs around 15 lakhs, three times more than conventional pacemakers; many patients may not be able to afford it.
- A total of 1,300 leadless pacemaker implantations has been performed in India since its introduction in 2018.

Conventional Pacemaker

• It has been used over the past decades in millions of patients.
• It consists of a battery or pulse generator and one or two long wires or leads, which are placed inside the chambers of the heart through a vein under the collarbone.
• The leads are connected to the battery, which is inserted inside a surgical pocket made by making a cut or incision under the skin below the collarbone.
• It can be associated with risks like bleeding, infection, and pus formation in the pocket.
• Longer healing periods and such complications may be higher in the elderly, frail, and diabetic patients.

Reference

[The Indian Express| Leadless Pacemaker]

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